

## WE CLAIM:

1 A magneto-resistive  $\text{CrO}_2$  polymer composite blend for use in magnetic storage devices such as in the audio and video tapes as magnetic read heads, magnetic field probes, or current voltage sensors in electrical devices comprising

- 88-93% w/w of the polymer preferably Low Density Poly Ethylene;
- 5-8% w/w of magnetic filler preferably  $\text{CrO}_2$  and
- 2-4% w/w of an additive.

2 The polymer composite blend as claimed in claim 1, wherein the said additive is conducting carbon.

3 The polymer composite blend as claimed in claim 1, wherein the said polymer is in the form of powder.

4 The polymer composite blend as claimed in claim 1, wherein the said magnetic filler is in the form of powder.

5 The polymer composite blend as claimed in claim 1, wherein the said additive is in the form of powder.

6 The polymer composite blend as claimed in claim 1, wherein the said low density polyethylene is having a mesh size 200 micron and 99.9% purity.

7 The polymer composite blend as claimed in claim 1, wherein the melting temperature of the said polymer is  $95^\circ\text{C}$  under a pressure of 5Kpa.

8 A process for the preparation of said magneto-resistive  $\text{CrO}_2$  polymer composite blend, comprising

- mixing the said polymer, said  $\text{CrO}_2$  and said additive in a mortar pestle to obtain a homogenous mixture
- heating the said homogenous mixture at a temperature of  $95-100^\circ\text{C}$  to obtain a blended melt
- casting the said melt between two metal plates to obtain sheets by applying the pressure.

9 The process as claimed in claim 8, wherein the said pressure is applied to the metal plates to obtain said sheet is from 4 - 5.5 KPa.

10 A process for the preparation of a magneto-resistive  $\text{CrO}_2$  polymer composite blend, comprising , mixing the said polymer, said  $\text{CrO}_2$  and said additive as conducting carbon to obtain a homogenous mixture , transferring the said homogenous mixture in a die at a pressure of 4.5-5.5 KPa to obtain a pellet , placing the said pellet in a metallic mould and keeping the said mould in a preheated hot press machine maintained at a temperature of  $95^\circ\text{C}$  at a pressure of 4-5.5 KPa, allowing the polymer to melt and flow into thick sheet, cooling the said mould to obtain a film having magnetic properties .

11 The process as claimed in claim 10, wherein the said mould is made up of metal , preferably of aluminum.

12 The process as claimed in claim 10, wherein the diameter of the said films varies from 10mm to 25mm depending on the size of the powder compact of the mixture.

13 The process as claimed in claim 10, wherein the said hot press machine is uni-axial hot press machine

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